REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 11-15 and 18-24 are pending. Claims 16 and 17 are canceled without prejudice or disclaimer. Claims 11-15 and 18-20 are amended. Support for the amendment to Claim 11 can be found in now-canceled dependent Claims 16 and 17. Support for the amendments to Claims 12-15 and 18-20 is self-evident. Claims 21-24 are newly added. Support for newly added dependent Claims 21-23 can be found in Figs. 6-8, for example. Support for newly added dependent Claim 24 can be found in the published application in numbered paragraph [0031], for example. No new matter is added.

In the outstanding Office Action, Claim 11 was rejected under 35 U.S.C. § 102(b) as anticipated by Piccirilli et al. (U.S. Patent No. 6,539,899, herein "Piccirilli"). Claims 11-20 were rejected under 35 U.S.C. § 102(b) as anticipated by Manners et al. (U.S. Patent No. 6,938,586, herein "Manners"). Claims 12-20 were rejected under 35 U.S.C. § 103(a) as obvious over Piccirilli in view of Manners, and further in view of Cook et al. (U.S. Patent No. 4,703,737, herein "Cook").

Regarding the rejections of Claim 11 as anticipated by each of Piccirilli and Manners and the rejections of Claims 12-20 as obvious over Piccirilli, Manners, and further in view of Cook, those rejections are respectfully traversed by the present response.

Amended independent Claim 11 recites the features of now-canceled dependent Claims 16 and 17 and patentably distinguishes over Piccirilli for at least the same reasons as original Claims 16 and 17.

The invention recited in amended Claim 11 relates to a fuel system vapor management unit of an engine (for example, an internal combustion engine) comprising a particular valve. This valve comprises three stable positions, one of which ensures

complete flow communication between a fuel tank and a vapor recovery system. The other two positions, respectively ensure complete and partial communication between this vapor recovery system and the engine.

The vapor recovery system of engines is generally a charcoal canister, which adsorbs hydrocarbons from the tank through vapor vent lines allowing the tank to vent (during normal operation including filling) without sending hydrocarbons into the atmosphere.

The invention recited in amended independent Claim 1 allows the hydrocarbons trapped in the canister to be periodically routed to the engine for combustion, **in an amount depending on the rotational speed of the engine and being metered with the valve according to the invention.** This amount typically goes from zero when the engine is switched off (and when only the fuel tank and the canister are in total communication) to a maximum amount when the engine turns at a normal speed (and when only the canister and the engine are in total communication), and **through an intermediate amount when the engine is turning at idle speed** (and only the canister and the engine are in partial communication).

The use of two purge positions prevents excessively rich air/fuel mixtures from entering the engine (as would typically be the case if there was only one purge position) and hence, reduces unburned hydrocarbons when the engine is idling while still allowing the canister to be purged.

This feature is not present in fuel vapor management systems valves where there is only one purge position.

Piccirilli relates to an **engine cooling system** comprising a rotary valve having an inlet port and a plurality of outlet ports.

Manners relates to a vane for automatically and proportionally adjusting fluid flow between an engine and a radiator for **cooling** the fluid heated by the engine. The vane rotates

about an axis but does not comprise adequate bores that define with the bores of the housing the ports of the vane.

Cook relates a fuel system vapor management unit comprising a vapor control valve comprising two pistons slidably received in a central passage.

In the rejection of Claims 12-20 as obvious over Piccirilli, Manners, and Cook the outstanding Office Action states:

> Not shown by Piccirilli et al. is the particular number of coils and magnets or use of the system with a fuel vapor control system. However, such solenoid valve details a known in the art and would have been obvious to one of ordinary skill in the art to utilize in accordance with desired valve and system performance. Moreover, using the known valve within a fuel vapor control system with the particular connects to the fuel tank and the other components of the vapor control system are within the level of skill in the art and shown by Manners et al. and Cook et al.[1]

As to Piccirilli and Manners, these references do not concern fuel vapor management at all and hence, could not solve the problem of canister purge at all engine speeds and certainly not with the solution of the invention recited in amended independent Claim 1.

In other words, Manners "relates to a valve for regulating flow of coolant fluid between a combustion engine and a radiator in an automotive vehicle,"[2] and a person of ordinary skill in the art would not rely on Manners to remedy the deficiencies in Piccirilli acknowledged in the outstanding Office Action regarding the particular connections made to the ports of the valve.

Cook does not suggest, let alone solve, the problem of canister purge at all engine speeds and certainly not with the solution recited in amended independent Claim 1. Rather, Cook relies on varying the intensity of a current provided to a coil (44) to overcome the two springs (66) and (90) to separate the valve seating surfaces (212) and (214) from their respective seating surfaces. Cook depends on the linear motion of the pistons (60) and (80)

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[1] Outstanding Office Action, page 4.
[2] Manners, col. 1, lines 12-14.

for this effect, and a person of ordinary skill in the art reading Cook would not have been led to replace the valve in Cook with the rotary valve provided by Piccirilli.

Nor would a person of ordinary skill in the art have been led by Cook to use the connections provided in Cook with the coolant valve provided by Piccirilli inasmuch as control of coolant and control of fuel vapors are entirely nonanalogous.

Accordingly, Applicants respectfully submit that amended independent Claim 11 and the claims depending therefrom patentably distinguish over any proper combination of the cited references for at least the reasons discussed above.

Applicants wish to make the following additional comments regarding dependent claims.

Newly added dependent Claim 21 recites that the valve includes at least five ports, one of which is a port of a first diameter and is configured to connect to a vapor recirculation line, and another of which is a port of a second diameter smaller than the first diameter, the port of a second diameter also being configured to connect to a vapor recirculation line. Applicants respectfully submit that no proper combination of Piccirilli, Manners, and Cook would include the above-noted features inasmuch as Cook, on which the outstanding Office Action relies for the specific connections recited in now-canceled Claims 16 and 17, describes only four ports.

Newly added dependent Claim 23 recites that at least two of the ports open in a direction parallel to the axis of the rotating inner section of the valve, and the at least two ports open in a same direction. Applicants respectfully submit that no proper combination of the cited references would include a valve with the above-noted configuration. Rather, Cook, on which the outstanding Office Action relies for the configuration of the connections, describes only four ports, no axis of rotation, and therefore, no ports opening in an axis of rotation.

Newly added dependent Claim 24 recites that the valve is configured to maintain a position in which none of the ports is in fluid communication with any other port while the valve is not energized. Applicants respectfully submit that no proper combination of Piccirilli, Manners, and Cook would include the above-noted features inasmuch as Piccirilli teaches away from this configuration.

Piccirilli states:

> In the event of failure of drive unit 30 or loss of a control signal, the present invention provides a **failsafe mechanism to bias flow diverter 21 into a rotational position where coolant flow is directed to the radiator circuit and to the heater circuit**. Thus, a return spring 33 is coupled between cover 28 and valve stem 27 to urge flow diverter 21 into the failsafe position when required. Spring 33 could alternatively be connected between cover 28 and gear box 31.[3]

Thus, the failsafe position in Piccirilli maintains at least one open connection, in contrast to the closed position recited in newly added dependent Claim 24.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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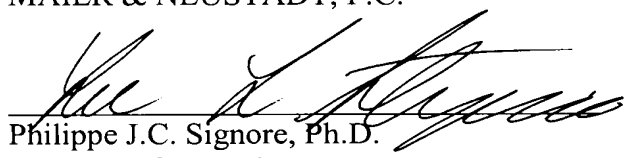

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[3] Piccirilli, col. 3, lines 53-65 (emphasis added).